

Morocco's experience in financing solar projects



February 5, 2019



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Morocco's Energy Strategy

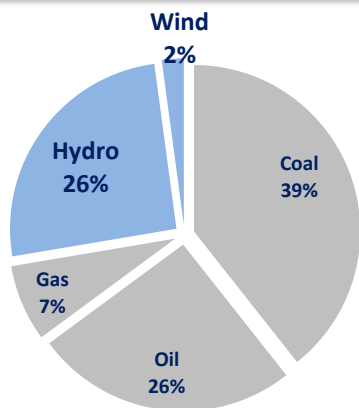


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RENEWABLE ENERGIES, AT THE HEART OF MOROCCO'S ENERGY STRATEGY

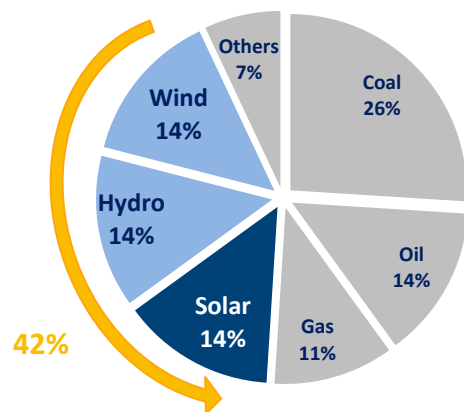
Strong will of increasing renewable energy share within the national mix by 2020 and 2030, through a roadmap of deployment based on an optimal technological mix

2009



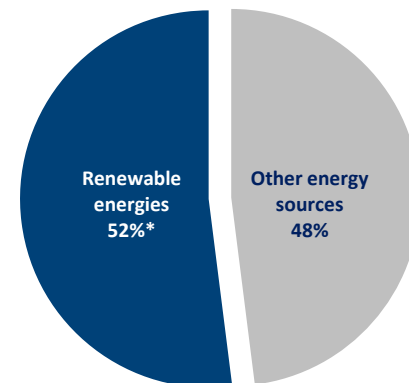
Renewable energy represented 28% of installed capacity

2020



Renewable energy will represent 42% of installed capacity

2030



Renewable energy will represent 52% of installed capacity

Conventional energy

Renewable energy

Projects developed/to be developed by masen



Masen's approach for RE projects



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DEVELOPMENT OF THE PROJECTS UNDER AN IPP – BOOT SCHEME

IPP projects

Independent Power Producer (IPP)

Design, financing, construction, operation and maintenance of the plant

BOOT scheme

Build, Own, Operate, Transfer

Award of the projects based on international tender processes

Double PPA

Developer

PPA 1



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PPA 2

المكتب الوطني للكهرباء و الماء الصالح للشرب
Office National de l'Electricité et de l'Eau Potable

Electricity is purchased from the developer by Masen and on-sold to the national utility ONEE

Purchase of electricity at market price and on-sale at a fixed price

Optimization of all the layers is key in order to reduce the tariff resulting from the tenders

APPROACH AIMING AT OPTIMIZING THE KWH TARIFF

Development of integrated projects at the lowest tariff possible based on an effective risk allocation scheme and a streamlined tender process

Reducing the costs of tenders to developers

- Transparency of the tender processes, visibility on the timeline of execution and clear rules of procurement
- Availability of studies enabling developers to perform their due diligence and the plants designs

Reducing the costs of funding of the projects

- Securing the financing by Masen from different IFIs at concessional rates (thanks to the State guarantee) and on-lending such financing to the SPCs through a repackaged senior loan, whose terms and conditions are shared during the tender

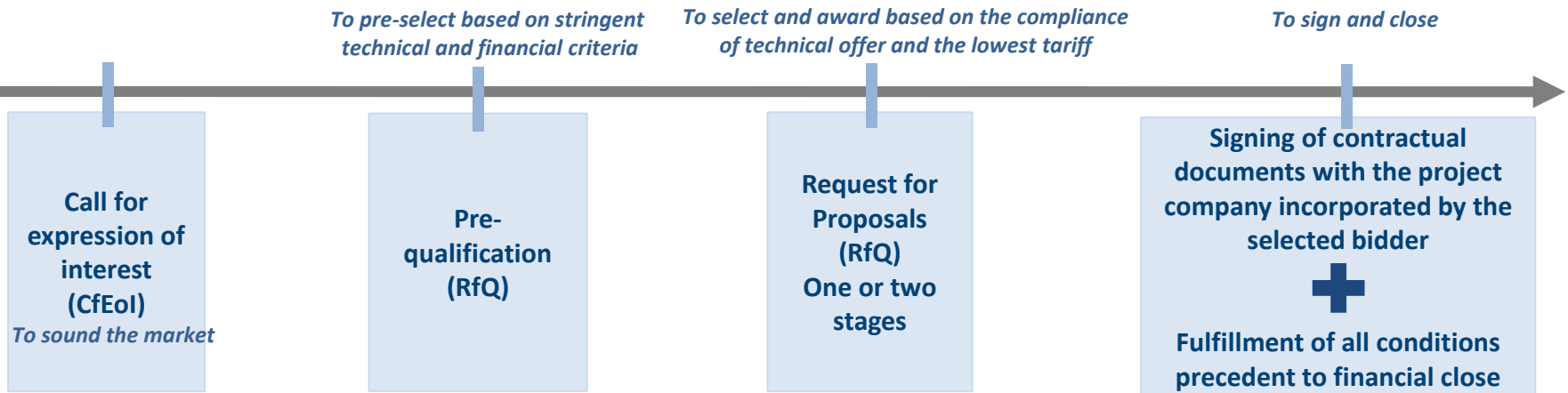
Reducing the risk premium of the projects

- Several risks, usually taken by the private party in standard PPs, are taken by the public party Masen
- Management of the Environmental and Social aspects of the site, the plants as well as the common infrastructures, in compliance with the most stringent international E&S standards

Several roles held by Masen optimizing the risk profile of the projects and leading to timing and transaction efficiencies as well as optimization of the tariff

PROCUREMENT PROCESS

Award of the projects based on competitive international tender processes enabling the selection of the right stakeholders



RISK ALLOCATION MODALITIES FOR MASEN PROJECTS

Examples of high level risk allocation

Construction Risk

Masen	SPC
<ul style="list-style-type: none"> Land Common Infrastructures 	<ul style="list-style-type: none"> Construction of the plant Acceptance Performance of the plant

Operating Risk

Masen	SPC
<ul style="list-style-type: none"> Transmission and availability of Infrastructures Availability of water 	<ul style="list-style-type: none"> Management of the plant Solar resource

Commercial Risk

Masen	SPC
<ul style="list-style-type: none"> Offtake volume 	<ul style="list-style-type: none"> Payment

Environmental Risk

Masen	SPC
<ul style="list-style-type: none"> Land 	<ul style="list-style-type: none"> Plant

Force majeure

Masen	SPC
<ul style="list-style-type: none"> Political risk Natural risk with an impact on common Infrastructures 	<ul style="list-style-type: none"> Natural risk with an impact on the plant

DIFFERENT ROLES HELD BY MASEN IN ORDER TO OPTIMIZE THE RISK PROFILE OF THE PROJETS

A proven institutional scheme involving several roles played by Masen with a clear risk allocation translated into the contractual documentation

Masen Offtaker

- Masen buys the electricity from the SPC
- Masen sells the electricity to ONEE

Masen Lender

- Masen raises Concessional Debt from IFIs and on-lends it to the SPC through a repackaged Senior Loan
- Concessional Debt scheme driven by:
 - Reduction of the overall cost of financing and of the transaction costs (thanks to State Guarantee)

Masen Land provider

- Masen secures the land

Masen Common Infra Provider

- Masen provides to the SPC Common Infrastructures such as Roads, Water, etc.

Masen Shareholder

- 25% shareholding in the SPC

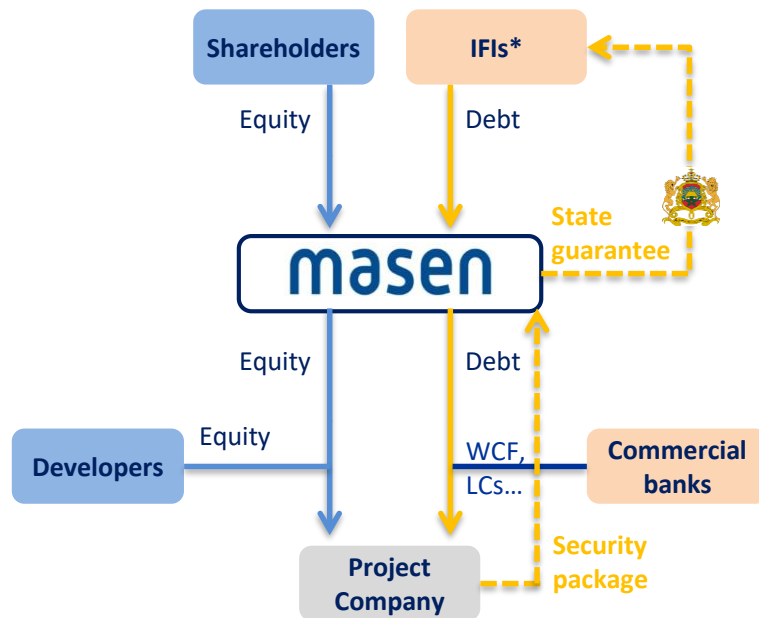
Masen Shareholder of O&M Cie

- 25% shareholding in the O&M Company

FOCUS ON FINANCING STRUCTURE (1/2)

Concessional financing secured through Masen to optimize the tariff

Masen's financing scheme



Rationale

- **Optimization of the Kwh tariff**
- **Reduction of transaction costs and risk premium**
Absorbing a number of risks that are usually borne by the developer which Masen could control better such as financing reduction of transaction costs and risk premium priced into bids as well as the cost of financing itself

Pre-requisites

- Strong commitment at the level of the State
- Early involvement of IFIs with :
 - deep understanding of their constraints
 - an alignment of positions on key matters as soon as possible
 - an optimization of their calendar to match to the extent possible the project's timeline

*IFIs : International Financing Institutions

FOCUS ON FINANCING STRUCTURE (2/2)

An important share needed for the projects launched so far has been provided by IFIS







~2 300 M€ mobilized from IFIs

1st Green Bond operation in Morocco, which aims at financing NOOR PV I Program

1 150 MMAD raised with optimal conditions

Al Barid Bank
Attijari Wafa Bank
La Caisse Marocaine des Retraites
La Société Centrale de Réassurance

SOLAR PROJECTS DEVELOPED SO FAR

<p>NOORo I</p> 	<p>NOORo II</p> 	<p>NOORo III</p> 	<p>NOOR PV I</p> 	<p>NOOR Midelt</p> 
<p>In operation</p>	<p>Under commissioning</p>	<p>Under commissioning</p>	<p>Under commissioning</p>	<p>Under development</p>
<p>CSP Parabolic Through</p>	<p>CSP Parabolic Through</p>	<p>CSP Tower</p>	<p>Photovoltaic</p>	<p>Hybrid CSP-PV</p>
<p>160 MW, 3h Storage</p>	<p>200 MW, >7h Storage</p>	<p>150 MW, >7h Storage</p>	<p>170 MW</p>	<p>>800 MW</p>



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